

MARCY, (H. O.)

WITH COMPLIMENTS OF THE AUTHOR.

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THE  
HISTOLOGY AND SURGICAL TREATMENT  
OF  
UTERINE MYOMA.

BY  
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Dr. HENRY O. MARCY, Boston, Mass, read a paper on—

THE HISTOLOGY AND SURGICAL TREATMENT OF UTERINE  
MYOMA.

L'HISTOLOGIE ET TRAITEMENT CHIRURGICAL DU MYOME UTERIN.

DIE HISTOLOGIE UND CHIRURGISCHE BEHANDLUNG DER UTERUSMYOME.

Illustrated by Photo-Micrographs.\*

Five years ago, in the address which I gave before the American Medical Association, as Chairman of the Section of Obstetrics, I incorporated the results of my studies upon uterine myoma, including the exhibition upon the screen of a series of histological preparations. To the present, no problem in surgery has been of greater interest to me, and for the better solution of which I have sought to avail myself of every opportunity. It is with intense satisfaction that I note the progress made in the intervening period. The interesting questions of proper wound treatment, which were then at white heat of discussion, may be considered to be in large degree settled. The rôle of the active ferments in wound infection is now subject to clear definition, and the differences of opinion held by the masters in the opposing lines of debate, like the agriculturists, have settled chiefly into the discussion of the adaptability of soil for the different varieties of fructifying seed. Now our distinguished friend, Mr. Tait, after years of careful study of the soil factorage of the problem, has accepted as fact that proper attention to the same, renders in large share abortive the seed implantation.

We review, with a degree of satisfaction, the last fifteen years devoted to study and experimentation for the better elucidation of this fundamental, vital question of surgery. To the student just commencing its study, the fruitage appears simple and easy ;

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\* The illustrations in this Section were projected upon the screen by Dr. McIntosh, of Chicago, special objectives having been made by him for the occasion. They were unquestionably superior to any which I have hitherto used. H. O. M.



but none, except those intimately engaged in the work, can know the difficulties that hedged about its proper solution, or the intense interest and enthusiastic zeal developed in its study. The limitations of this paper are such that the field of the study of uterine myoma, interesting as it is, must be greatly narrowed. I propose, therefore, to call your attention to but two factors, either of which, properly elucidated, would greatly exceed the time at my disposal. The first, the histological development and factorage of the growth. I am able to place before you a portion only, selected as illustrative specimens from a large series of sections, the result of the years of study. It gives me great pleasure to acknowledge the assistance of my friend, Dr. S. N. Nelson, of Boston, whose pathological investigations are already well known, and I would call your attention to the singular beauty and delicacy of many of the preparations. We had hoped, at the outset, to throw some light upon the cause of the pathological development itself. Some time since, I accidentally saw, in a brief note in a medical journal, that a bacillus had been found in colonization in the centre of the individual growth, and it was offered as a solution of the hitherto unknown cause, that the proliferation of cell character round about this, as a nucleus, was an attempt of nature to fortify against further invasion. We exhibit photographs of the cultivation of a bacillus grown in agar-agar, made by our friend, Dr. M. G. Parker, of Lowell.\*

We well know that a priori reasoning is often fallacious, but the clinical history of uterine myoma would seem to preclude a germ implantation as the cause of their growth.

Differential staining and examination of a number of specimens have failed to demonstrate bacterial colonization in *loco*.

We think in the illustrations we have clearly shown that the character of the growth, no matter whether rapid or slow in development, has its factorage in muscular bundles united by very delicate layers of connective tissue. It is now generally accepted that the connective tissue rarely, if ever, becomes a predominant or even prominent factor. The rapidity of growth would seem to depend upon the different centres of development. For convenience these have been called lobules. They may be single or multiple.

The vascularity of these growths is usually very limited, even when in a state of active proliferation. I have succeeded in the injection of but a single specimen. This was effected by the injection fluid being subjected to a continuous atmospheric pressure. On the other hand, as has been seen, there is generally found a series of enlarged, oftentimes ectasic vessels, surrounding the growth with a kind of venous plexus, from which it is apparent that the myoma derives most of its nourishment by absorption. In a few instances, I have been enabled to demonstrate vessels of some size in the growth itself, but this is decidedly exceptional. When vessels are found, they are very thin-walled, usually lined with a single layer of endothelial cells. I have never been at all sure of my ability to demonstrate nerve endings or filaments in the tumor, nor have I been able to trace into the centre of the growth minute vein or capillary, about which it was supposed by Billroth the cellular proliferation was set up as the point of departure. Various modified, the general picture of a myoma is reproduced, whether the location is interstitial, subperitoneal, or sub-mucous. The condition, more than any other, upon which is dependent the rapid increase, is the multiplication of the centres of development.

The changes in the uterine tissue about the growth are of greater importance than those in the tumor itself. It is easy to understand that the constant and increasing pressure, circumferentially in every direction, would produce a continued and increasing tension upon the enclosing tissue. In this way, the muscular bundles of the uterus,

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\* See careful description of same in paper by Dr. Nelson, published in this volume.



as differentiated from the tumor itself, change in their structural relations. It is easy to see that they are drawn out into a parallel layering of fibrillæ, extending some distance about the growth. The cells themselves are changed in structure and present, to the naked eye, appearances which earlier were accepted as a connective tissue capsule. Here, as in the growth itself, connective tissue does not seem to be relatively increased. Under pressure of this character, while the direct arterial current of blood supply is not much lessened, the venous return current is greatly impeded, and the thin-walled veins become dilated and pouched in great variation. In some cases, it seems that a futile attempt had been made by cell proliferation to fortify against the invading mass. *Pari passu*, by the enlargement of the uterine tumor, the peritoneal investment develops without material change, much as takes place in the physiological growth of the organ in pregnancy, or the marvelous increase in size of a cystoma of the ovary.

The endometrium undergoes no material change, except when the growth presses upon or into the uterine cavity, in such a manner as to disturb the nutrition of the uterine mucosa, with its complex and delicate glandular apparatus. In the class of cases, where exhaustion, or even danger, arises from uterine hemorrhage, the changes in the vascular supply of the endometrium often produce distinct pathological conditions of it. Where the tumor has become distinctly intra-uterine, it is easy to understand how the ectasic vascular plexus, formed about the growth, would be a constant source of serous if not hemorrhagic exudation.

The processes of reproduction may go on normally in the uterus, deformed by a myomatous growth, and the uterus is brought into pathological relations therewith, only from the fact of the mechanical disability of the organ, arising from the tumor, in the fulfillment of its physiological function. Under the increased nutrition of pregnancy, notwithstanding its complication and mechanical factorage, the tumor usually develops much more rapidly. Involution after delivery, in the same manner, oftentimes causes diminution of the growth. If labor is conducted to a happy issue, which is the decided exception, the period of lactation, accompanied by quiescence of ovarian action, is another factor favorable to the diminution of the myoma. It was early recognized that a cessation of menstruation acted favorably in bringing to a standstill the development of these growths, and often was followed by a marked diminution of the tumor. It was a legitimate deduction from these premises, that an artificial arrest of menstruation producing, so to speak, a premature menopause, would act favorably toward the retardation of these growths. Under the able leadership of Battey, in America; Tait, in England and Hegar, in Germany, with their many followers, it may now be accepted, as a demonstrated fact, that the removal of the uterine appendages for the arrest of the growth of the tumor is in very many instances advisable. This operation effects a marked physiological change in the uterus itself, most noteworthy, perhaps, in the atrophy of the endometrium. There can also be no question but that the cutting off of the blood supply is important in securing this result. The danger in the removal of the uterine appendages, in the hands of competent operators, is now reduced to a such a low percentage, that a patient suffering from a small interstitial tumor of the fundus, while yet in the middle period of menstrual life, may wisely consider the advisability of operation. In the large class of patients suffering from uterine myoma, they are not usually seen by the physician until the growths are already well pronounced. There yet remains much diversity of opinion among operators, as to the advantage to be gained by the removal of the uterine appendages when the tumor has attained a considerable size. The operation is then much more difficult and the results far less satisfactory.

When does a uterine myoma render hysterectomy justifiable or to be advised? To this question it may be replied, first, when it can be clearly demonstrated that the condition of the patient jeopardizes life in a degree greater than the operation. Under this head



should be classed excessive menorrhagias not amenable to treatment, and which endanger life. Second, where the location of the growth impedes or renders difficult to a dangerous degree the function of other organs. Third, a somewhat large class, where, from weight and discomfort, together with exhaustion and suffering, life has become an intolerable burden. I am myself constrained to believe that the danger to life itself from each of these three classes of condition is very much greater than the profession in general is wont to accept. If judged by the rule that the sins of omission are alike with those of commission, most of us might plead guilty in refusing operative measures in many cases of either class. In illustration of the latter, I shall long remember a woman of wealth and position, who sought for years, at every hand, for relief, asking of me for operation only a few weeks prior to her sudden death from pressure, and where the autopsy revealed a myoma weighing over forty pounds, without attachment, except by a pedicle not much larger than the thumb.

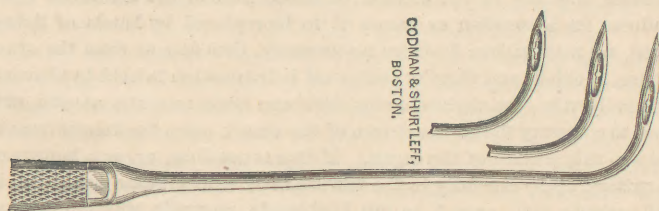
We are in a better condition to-day, to determine the dangers of hysterectomy and to predicate its advisability, than ever before. The great gain and safety of modern wound treatment is perhaps better exemplified in abdominal surgery than elsewhere. The comparative immunity resulting from the removal of a cystoma of the ovary and of the uterine appendages has clearly taught that, with proper care, the abdominal cavity is within justifiable range of surgical research. It is doubtful if diagnosis can ever be carried to a refinement of differentiation sufficient to determine with accuracy the factorage and conditions of pathological changes within the abdominal cavity. Explorative investigation is the only key to open and render exact our knowledge of the same. That this should be resorted to much more commonly than is usually done is without question. With a patient of fair average vitality, the dangers of operative interference may be analyzed as shock, hemorrhage, and septic infection. Shock is a term, unfortunately, yet used to cover a series of unknown factors, but which may be considered the deleterious effect upon the nervous system. This I myself have, for a long time, believed to consist in a lessening of the temperature of the body, perhaps from interruption of the function of the nerve, heat-inhibitory centres. This may be only another term for the expression of a sudden lowering of vitality. In order the better to avoid this, I have for many years performed all severe operations in an atmosphere with the temperature at 80° F.

Some years since, for prolonged abdominal operations, I devised the use of a rubber coil large enough to cover the whole back, which is placed beneath the patient, through which, during the operation, water is kept constantly flowing at the temperature of about 110° F. I have felt that the danger of shock is thus reduced to a minimum.

Undoubtedly many lives have been and still continue to be lost from hemorrhage. The uterus, in its normal condition, is, in a very high degree vascular, and, as we have already seen, the vessels of the uterus are subject to very decided changes on account of myomatous growths. The arteries supplying the uterus can be ligated separately only with the greatest difficulty, and oozing from the divided uterine tissue can only be stopped by ligation in mass. This, as usually done, necessitates necrosis of tissue upon the constricting point, and is the chief objection to the intra-peritoneal treatment of the stump. For this reason, although, as a rule, the divided cervical tissues are less well adapted for external treatment than the pedicle of an ovarian cyst, the uterine stump is, almost without exception, treated by the extra-peritoneal method. The great advance in the last few years in ovariectomy, in its remarkable improvements in results, is justly attributed to the doing away of the clamp, returning the sewed-off pedicle and at once closing the abdominal wound, without drainage. It appears to me that every argument used in favor of the intra-peritoneal treatment of the pedicle in ovariectomy may be applied with still greater emphasis to the intra-peritoneal treatment of the stump in hysterectomy.

Assured of the avoidance of danger from hemorrhage and necrosis, with an aseptic condition of the parts, and you remove all the arguments used in favor of external treatment. This I think I have in large degree secured. I had the honor of advocating the method which I now describe at the International Medical Congress held in London, in 1881. With only slight modifications, I have continued its use until the present with increased satisfaction.

Over the exposed tumor which, if of considerable size, should be drawn up from its position (very conveniently by one or more corkscrews introduced into the tumor and used as handles), a sheet of pure rubber, through the centre of which is a reinforced opening as a ring, is forced down as far as possible to the cervix. About the reinforcement one or more turns of elastic ligature is made. The intestines are carefully protected, the abdominal wall being drawn together as securely as may be by a sublimated towel placed over the abdomen. The abdominal cavity thus protected, the remainder of the operation can be easily conducted under irrigation, a most important factor in prevention of wound infection, which alone would render the rubber apron of marked service. This use of the rubber was suggested to me from its service to the dentist about the root of a carious tooth. The elastic ligature renders the operation bloodless, except the venous engorgement of the tissues. It is distinctly preferable, profiting by the knowledge of the easy enucleation of the growth, to cut open and remove the tumor or tumors. In rare instances of single growths, the wound may be safely closed and



the uterus preserved intact. This can only happen when the tumor is subserous and attached by a pedicle, or where the interstitial growth has not so deformed the uterus, but that its cavity may remain intact after its removal, and the uterus be restored, in considerable degree, to its original shape. It was in the hope of saving the uterus after removal of the tumor that I began my histological investigations, now more than ten years ago. I was not then aware that myoma were so rarely single in their development. Dr. Martin, of Berlin, almost the only prominent operator that I know who practices the intra-peritoneal treatment of the pedicle, has had most remarkable successful results in the excision of uterine tumors with the preservation of the organ. Of sixteen cases of enucleation, thirteen recovered, the last ten consecutively.

When the large mass of the uterus and the tumor have been removed, an assistant holding the stump with forceps, the pedicle just above the constricting ring is sewed through and through by the use of a long needle set in a handle, without cutting point, with an eye near its distal end. I first used a modification of the so-called Peaslee needle, and adapted it to this method of suturing by the enlargement and elongation of the eye, nearly ten years since. I have experimented by variously changing the shape and curve of the needle, until I now prefer as the usual pattern a strong needle with a well marked curve. They are made in different sizes by Messrs Codman & Shurtleff, of Boston, and Tiemann & Co., of New York. Threaded with an antiseptically prepared tendinous ligature, commence near one side, and thrusting the needle through, detach the suture and re-thread the other end, then withdraw the needle, thus



making a shoemaker's or saddler's stitch, which carries the ends of the suture from opposite directions, through the same hole made by a smooth-pointed instrument. This process is repeated, enclosing purposely only a comparatively small portion of the tissue, and uniform pressure is carefully continued until the entire stump is sewed through, frequently using ten or more stitches, from one-quarter to one-third of an inch apart. Then one knot completes the fixation, reducing to the minimum the greatest danger from the animal ligature.

The amputation of the uterus is completed by a double flap and the parietal edges are carefully approximated by a fine continuous animal suture in the same way as above, which leaves the line of closure about an inch and a half above the transverse suturing. The constricting elastic ligature is now loosened, the rubber sheet removed, the stump dropped into the abdominal cavity and the operation completed as in ovariectomy. The advantages of this method are: First, the abdominal cavity is at once closed from possible contact, and the *toilette de peritoneum* is entirely avoided. Second, if properly done the operation is almost bloodless and no hemorrhage can occur, either primary or secondary. Bleeding from the stump is prevented by the careful closure in section with one continuous suture; this is rendered still more certain by the approximation in continuous sewing of the opposing parietal edges. Third, yet more important, by this method we compress the tissue sufficiently to control hemorrhage, while we do not produce necrosis of the distal portion. Equalized pressure is secured by the continuous suturing, since one stitch cannot compress more than another. An exudative repair speedily ensues, shutting in the connective tissue fibre of the tendinous ligature and either produces its absorption or causes it to be replaced by bands of living tissue. Thus treated, we may believe drainage unnecessary, that danger from the stump is, in large measure, avoided, and thereby peritoneal inflammation is held in abeyance.

It is generally wise, the vagina having first been made carefully aseptic, at the time of suturing, to cut away the endometrium of the cervix, since the danger from infection may pertain to this portion of the organ. If this is not done, or, as a better safeguard, before the cutting, apply carefully to the cervical mucous membrane on section, liquefied crystals of carbolic acid, or a 1 to 100 bi-chloride mercuric solution. In any case, where, for any reason, effusions may be presumed to follow, it may be wise to introduce a short drainage tube of rubber through the posterior cul-de-sac of the vagina. The peritoneum of the abdominal wound is closed by a fine continuous animal suture, after which the operation is finished under irrigation. The recti muscles are held in approximation by a buried animal suture and the skin is carefully united by a fine continuous suture. The wound is then sealed with iodoform collodion. If a drainage tube has been used the vagina is lightly filled with iodoform wool.

An operation thus carefully conducted is rendered as safe from infection as a laparotomy for any other cause. No matter how careful the operator may be, danger from infection cannot be absolutely eliminated. But, by measures such as above outlined, and now fortunately in common use, with more or less modification, by all the leading operators, infection is reduced to the minimum.

The greatest danger lies, first of all, in the operator himself, and if Mr. Tait's cleanliness means asepsis I am content with the definition. No man lays greater stress upon the condition of hand and sponge, the two great sources of infective danger, than does he. Acting upon the principle that the atmosphere necessarily contains infection, I regard the preparation of the operating room of much importance. The floor and the wall, before each operation, are washed with carbolic or mercuric solution, and the room is subjected to carbolic spray an hour before the operation is commenced. The abdomen is carefully scrubbed with bichloride soap and water, and shaved. The dry clothing of the patient is protected by light rubber, which, in turn, is covered with towels wrung out in a 1-1000 bi-chloride mercuric solution. Thus the abdomen is



entirely covered, except a small portion about the surface to be operated upon. I have devised a large, inflated rubber receptacle, with an outlet for free outflow therefrom, which is placed beneath the patient to receive the irrigating and other fluids. The operator and his assistants exercise scrupulous care to be themselves free from infection. This includes the washing of the head and beard, as well as the hand and arm, in a strong bi-chloride mercuric solution. Instruments are taken from and when not in use immediately returned to a bath of 1-40 carbolic acid solution. Sponges are used as little as possible, and only those that have been for a considerable period soaked in a 1-1000 mercuri-bi-chloride solution. Challenge critical inspection of all ligatures and sutures. The most trustworthy and satisfactory which I have found is the long tendon from the tail of the Kangaroo. When ready for preparation, these should be lightly chromicized and then soaked for a few hours in a 1-1000 bi-chloride mercuric solution, mounted in assorted bundles upon glass rods, and kept in a tall jar of ten per cent. carbolic oil. They are thus ready for immediate use. It is wise to prepare a considerable quantity at a time, since the sutures are greatly improved by age.

In illustration of the danger which may result from imperfectly prepared sutures, in two of my recent cases of hysterectomy, in order to economize the rapidly diminishing supply of tendons, I used a new specimen of exceedingly handsome English catgut, the skeins of which were imported in carbolic oil. The use of this was limited to the deep suturing of the recti muscles, and was applied under irrigation. Both cases developed a pure micrococcal culture along the line of the buried suture, resulting in multiple abscesses; the recovery of one was satisfactory, with this exception, while in the other death supervened the fourteenth day, following a phlebitis of the left leg.

An Alexander and one other operation, where buried suturing was used from the same supply of catgut, were also followed by abscesses, and made slow recovery.

Of importance, secondary only to the infection of the wounded surfaces, do we consider the treatment of the wound itself. By this we mean, using the metaphor, the care of the soil, as well as the seed. The wounded surfaces should be protected, as much as possible, from manipulative injury. Careful approximation of the peritoneal edges of the cervical pedicle leaves little room for infective absorption. The peritoneal cavity should be left as clean and dry as possible. If necessarily infected during the operation, it may be safely and thoroughly washed with a bi-chloride solution of 1-8000 or 10,000, at the temperature of about 100° F.

If fear of mercuric poisoning should be held by any, this may be followed with water that has been boiled and cooled to the proper degree. As far as practicable, leave the peritoneal cavity, as well as the approximated edges of the wound, not alone especially clean, but also dry. The ordinary septic ferments reproduce imperfectly, except in fluid. Tissues which have not been greatly lowered in vitality are usually able to protect themselves from germ infection.

The attention of the profession has been called, for a considerable period, to the effect of galvanism upon myomatous growths. The subject has been most ably discussed at this meeting of the Congress, and we have listened with intense interest to the views held by the masters. May the future results demonstrate the sanguine hopes of its most enthusiastic advocates.

It seems but yesterday that the surgeon who dared to advocate hysterectomy did so at the peril of his professional repute. To-day, it is established as a legitimate procedure with pretty clearly defined limit. The surgery of the present is being rapidly rewritten. Our age marks an era in its development. The comparative safe surgical removal of myomatous uterine growths is in a fair way for clear demonstration, and will be advised in a large number of cases usually hitherto considered beyond relief. We venture little in predicting that the next decade will add no less brilliant triumphs in gynecic as well as general surgery.



PLATE I, FIG. 1.\*



*aa*, Double myoma. *bb*, Uterine tissue, much changed by lateral pressure, producing the so-called capsular layers.

\* A. Towles' one-inch objective used. Amplification about twenty diameters.

PLATE I, FIG. 2.



*aaa*, Three independent tumors. *bbb*, Series of extraordinarily enlarged peripheral vessels. *ccc*, Connective tissue. The surrounding uterine wall, under the pressure and tension exerted by the growing masses, is changed into bands of more or less parallel fibres, which might be mistaken for connective tissue. Twenty diameters.



PLATE II, FIG. 1.

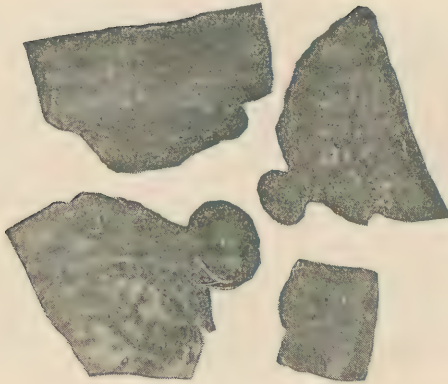
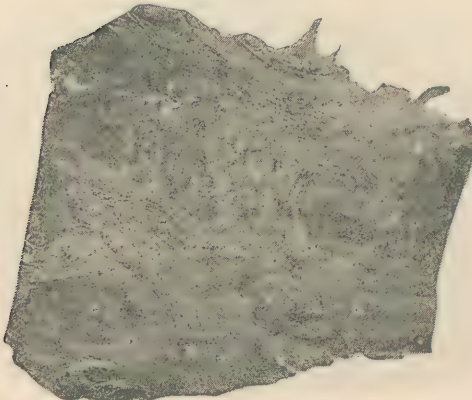


PLATE II, FIG. 2.



Figs. 1 and 2. *aaa*, Multiple myoma; ten diameters.  
Smaller growth, sub-peritoneal. *bb*, Deformed uterine wall.

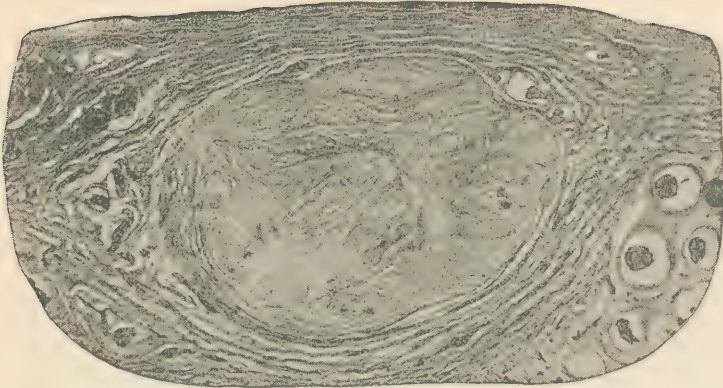
PLATE II, FIG. 3.



Section of a sub-peritoneal calcified myoma, which could only be divided by a saw. *aaaa*, Bundles of fibres cut in various directions. *bbb*, Limited areas infiltrated by lime salts.

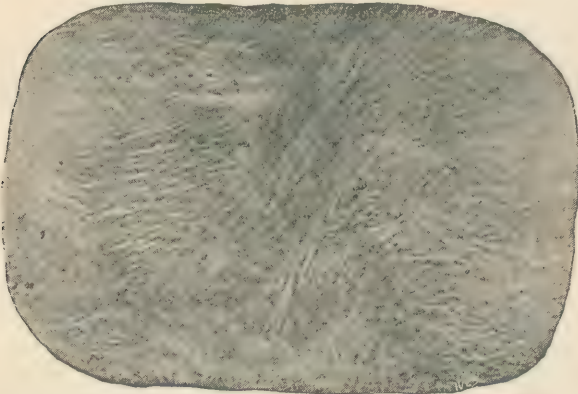


PLATE III, FIG. 1.



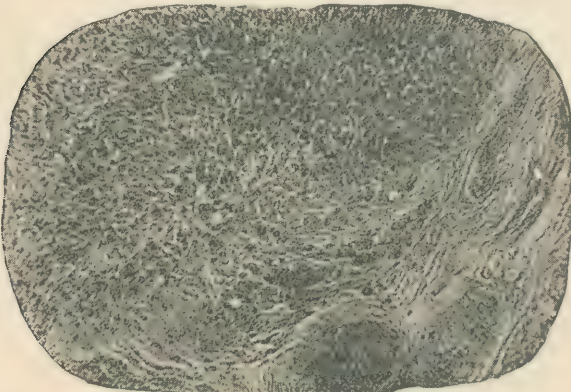
Interstitial myoma, injected under continuous pressure.  $\times$  fifteen diameters.

PLATE III, FIG. 2.



Section of myoma.  $\times$  500 diameters. Muscular bundles cut in varying directions.

PLATE III, FIG. 3.



Section of myoma, 400 diameters. Towle's immersion homogeneous tenth objective. Muscular bundles cut in various directions. The nuclei of many of the cells are easily distinguished. Connective tissue shown is nowhere in excess.

## DISCUSSION.

Dr. A. DUNLAP, Springfield, Ohio, opening the discussion, stated that for many years no subject had possessed for him a greater interest. He had made many experiments in the treatment of the stump after hysterectomy, and had used a stitch something like the one devised by Dr. Marcy. He had imitated the shoemaker by threading each end of a suture in a needle, and as nearly as possible thrusting them from opposite directions through the same part, side by side; he tied each stitch thus made, which he thought, perhaps, was an improvement upon Dr. Marcy's method. When he was informed of Dr. Marcy's operation, he had accepted it as better than his own, and had never published his studies upon the treatment of the uterine pedicle. He fully accepted the intra-pelvic treatment of the stump, with closure of the abdominal wound, as a marked advance in the surgical treatment of uterine fibroids where hysterectomy was deemed necessary.

Dr. C. R. REED, Middleport, Ohio, discussed the advantages of different methods of the treatment of the pedicle. The extra-peritoneal one had alone the advantage of the knowledge and control over hemorrhage. By the methods devised by Dr. Marcy, it seemed the dangers from loss of blood during and after the operation were reduced to a minimum, and that the return of the stump thus treated could be safely advised.

Dr. A. HEWSON, of Philadelphia, was under obligation to Drs. Trenholme and Marcy for the able presentation of the surgical treatment of myoma. Dr. Marcy's methods for the arrest of hemorrhage were certainly to be commended for their originality and simplicity. They seemed to furnish the best and safest way to control the danger which hitherto has been much the greater of all in the performing of hysterectomy. In his hands he has seen exceptional results from his dry-earth treatment, rendering, not seldom, surgical interference unnecessary.

Dr. E. H. TRENHOLME, Montreal, in closing the discussion of his paper said: In his experience the removal of the ovaries for the arrest of the growth of myomas had been uncertain, and in the main disappointing. It was not easy to do when the tumor was of any considerable size, and the vascularity of the surrounding tissues was a subject of important consideration. The age of the patient was ever to be kept in mind. When the menopause has already taken place, the condition was, of course, more hopeful; but even here the growths often continue to increase.

Dr. J. TABER JOHNSON, of Washington, expressed a deep interest in the subject of Dr. Marcy's paper. The teachings of the paper, especially as shown by the large series of sections upon the changes in the surrounding vascular supply, is of the greatest importance. The two great dangers are hemorrhage and septicæmia. The methods devised by Dr. Marcy are of great value in the lessening of both. The dangers from hysterectomy were never to be considered as other than very great, and we must be conservative in giving advice in matters of such gravity. In the light of the teachings of yesterday, let it be hoped that less severe measures will be commended, and we find in electrolysis a safe and well-advised means of cure.

Dr. F. W. ENTRIKIN, of Ohio, was opposed to resorting to so dangerous an operation as hysterectomy for the relief of myoma, unless in a very small class of selected cases. He was encouraged by the remarkable successes in abdominal surgery, but considered caution necessary in all cases. Ergot with rest and constitutional treatment had seemed to him to be much the best for a large class of cases.



Dr. WATSON, of Ohio, hoped the interest awakened by such able advocates of hysterectomy as Dr. Marcy, would not cause a too frequent resort to such a dangerous operation. When done, it should be attempted only by such experts as have had careful training. Although he had had a long experience with a large number of fibroid tumors, the mortality was not great, and in his hands he had had excellent results in the use of ergot as commended by Dr. Nelson, of Chicago, on Tuesday.

Dr. AUGUSTUS P. CLARKE, Cambridge, Mass.—In discussing Dr. Marcy's valuable and interesting paper on "Histology and Surgical Treatment of Uterine Myoma," I feel confident, from my own experience in a somewhat similar investigation, that Dr. Marcy has demonstrated the certainty of the great vascularity of the uterine myoma. This feature in the histology and pathology of the growths, it will be remembered, was beautifully shown upon the screen. Undoubtedly, the vessels nourishing such growths in some cases may, at length, especially after the menopause, take on a retrograde process, but there are cases in which operative measures must be taken without waiting for such an event. Ergot is often a valuable agent, but the pecuniary circumstances of the patient often demand a more prompt and radical treatment. I have had the good fortune to witness, and also to assist in, several of Dr. Marcy's cases of uterine fibroids, and in the great majority of the cases in which any operation was undertaken by him the results were extremely satisfactory. The size and position of the growths often modify our prognosis and our method of treatment, and though the smaller uterine tumors are often very difficult of removal, we shall, nevertheless, find continual suture an important help in securing good results of the operation. When the patient's life is endangered by hemorrhage, removal of the larger-sized tumors, even if deeply embedded, may be undertaken. In cases of subperitoneal fibroids, when there is extreme urgency of symptoms, excision by laparotomy is frequently demanded. When the separation of the tumor from the uterus cannot safely be undertaken, extirpation of the uterus, according to the method of Professor Martin, of Berlin, or ablation of that organ by laparotomy, may be undertaken. The histology of these growths shows that they are benign in their character, and, as said before, when the patient's life is immediately threatened, increasing experience leads us to hope for more favorable results after operative interference. We should be exceedingly wary how we attach importance to published statistics relating to surgical operations and treatment of cases so grave as those we are here discussing. For in all such cases experience teaches that more depends upon the varying phase of each individual case, the peculiar condition of the patient and the accomplished skill of the operator, than on certain teachings of statistics, the value and character of which it is possible for us to know only in part. In all cases requiring surgical interference the strictest antiseptic precautions should be observed.

Dr. E. E. MONTGOMERY, of Philadelphia, Pa., spoke of his pleasure in listening to the papers of Drs. Trenholme and Marcy. There is a class of cases in which the operation is indicated as much by the circumstances of the patient as by the condition of the growth. Thus, in a sessile submucous growth, where the cervix is elongated by the traction of the growth, it is true, the use of ergot would ultimately enucleate and pedunculate the growth, but a woman dependent upon her own exertions for her sustenance could not afford the time.

The removal of the ovaries does not always bring about a cessation of the menses, and where the uterus can be readily removed, that operation is preferable.

The plan suggested by Dr. Marcy, of controlling hemorrhage by his double stitch, enables us to operate upon pelvic tumors that would otherwise be irremediable.

Dr. MARCY, in closing the debate, stated his obligations for the favorable criticisms which had been so freely made. In reply to Dr. Hitchcock, as to the objections to operation where a large myoma filled the pelvic cavity, and how best to meet them, he would say, that in his experience these were the ones which usually cause the greatest suffering and danger. They certainly were much more difficult to remove. There is in such cases no pedicle, and one must be made from the deformed uterine tissues. Here the rubber fenestrated apron is to be made to encompass the growth as far as possible, and then constricted by the rubber ligature. After this cut the uterus boldly open, removing by enucleation the growths, and then form from the tissues about the cervix a stump, as described in the paper. This is finished in such a way as to leave no open wound within the peritoneal cavity.

Dr. Marcy said, in reply to the question of Dr. Weeks, of Me., that the after results in his cases had been satisfactory. His first case was now nine years since. There is a small nodule at the roof of the vagina, made by the cervical stump. He was obliged to Dr. Dunlap for the statement of his interesting experience. He could not help thinking the stitch which he advocated was better than that tried by Dr. Dunlap, since it must be borne in mind that compression sufficient to secure control of hemorrhage was sought, and a ligation to effect necrosis was to be avoided. This was the better effected by his double continuous suture, since one stitch, in a measure, compensated for another by the equalizing of the pressure brought to bear upon the tissues. The ill effects of too tight ligature he had recently had exhibited to him in the inspection of a post-mortem specimen, where the operator, a distinguished surgeon of his own city, had ligated and removed a myoma attached to the fundus by a thin pedicle. This had been tied in halves by a double ligature, so tight that necrosis had supervened, and death followed from it. . . . He had never had the priority of the use of his method of suturing questioned, and yet, from its ease of application and simplicity, it seemed a wonder it had not become of general use in a number of operations. Dr. Marcy uses it in the sewing off of the pedicle in all ovariectomies, and in some of the deeply imbedded cysts of the broad ligament the removal can be safely effected, where usually the cyst has been removed only in part, and the sac stitched into the abdominal wound. He had removed a number of such cysts in this manner, and in no instance, either in hysterectomy or cystic tumors, had he ever had a hemorrhage, either primary or secondary. He did not feel safe with silk, since he felt that aseptic silk even causes irritation, and is often a source of trouble months after it has been buried in the tissues. Tendon is much to be preferred over catgut. The use of the elastic ligature is only a modification of Esmarch's use of rubber. Dr. Marcy, however, believes he was the first to advocate the use of the elastic ligature, now about nine years ago, for the constriction of a myoma at the base of the uterus, as a temporary means of controlling the blood supply, as well as the devising and use of the "rubber dam." This occurred to him after the encircling of a carious tooth with a thin piece of rubber by his dentist. The reinforcement of the opening through the sheet serves the double purpose of constriction and the prevention of the slipping of the elastic ligature. Of course, its chief advantage is the protection of the abdominal contents from injury and contamination, while, at the same time, it renders easy and safe irrigation during the operation, otherwise impossible.

He had, also, for the purpose of receiving the blood and irrigating fluids, devised a large, ovate, inflated rubber receptacle, with an outflow, which is placed under the patient. This prevents the soiling of the bedding or room, and allows the patient's clothing to remain dry, warm and clean.



Dr. Marcy closed with the prediction that many improvements were yet to be made in the surgical treatment of myoma, and, while it could never be looked upon as simple or safe an operation as ovariectomy, hysterectomy would be favored by many now opposing the operation, and be recognized as clearly advised in a considerable class of cases.











